BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G50.604.2
Issue 1, May, 1948
AT&T Co Standard

CABLE SPLICING—GENERAL
SHORT PAIR TWIST QUADDED CABLE

Contents **Page**

1. GENERAL

1.01 A quad consists of four individually insulated conductors arranged in twisted pairs with the two pairs then twisted together. The twist by which the two wires of a pair are combined is referred to as the pair twist and the twist by which the two pairs are combined to form a quad is called the quad twist.

1.02 Like colors of insulation are used on the two wires of each twisted pair.

1.03 The term short pair twist designates a cable in which the pair twist ranges from 5″ to 7″ in length and the quad twist ranges from 8″ to 10″ in length.

2. PAIR TYPES

2.01 The colors of insulation used in short pair twist quadded cables are as follows:

Quad Type	Colors of Insulation	
	Pair 1	Pair 2
1	White[B]	Blue
2	Orange	Green
3	White	Red
4	White[G]	Orange[B]
5	Orange[G]	Red
6	White[G]	Blue
7	Orange[G]	Green
8	White	Red[B]
9	White[B]	Orange[B]
10	Orange	Red[B]

[B]—Black Stain on edge of insulation of both wires.
[G]—Green Stain on edge of insulation of both wires.

Note: The stain used in the short pair twist color code is applied to the edge of the insulation for identification purposes and is not sufficient to obscure the color of the paper.

3. ARRANGEMENT OF QUADS

3.01 In the short pair twist quadded cable, two marker quads, Type 5 and Type 10 are used. The Type 5 quad appears once in the outside and once in each alternate layer toward the center of the cable. The Type 10 quad appears once in the next to the outside layer and once in each alternate layer toward the center of the cable.

3.02 The sequence of the remaining quads in the layers having the Type 5 marker quad is Types 1, 2, 3 and 4. In the layers having the Type 10 marker quad the sequence is Types 6, 7, 8 and 9 following the marker quad. If the sequence of quads noted above appears in a clockwise direction in one layer it will so appear in all layers and vice versa.

3.03 The above sequence is followed except where it would result in having a Type 1 or a Type 6 quad on each side of the tracer. In this event, a Type 2 or a Type 7 quad is substituted for the last Type 1 or Type 6 quad respectively.

3.04 The one Type 5 or Type 10 quad in each layer is provided as a starting point for identification purposes.

3.05 Neither a Type 5 nor a Type 10 quad appears in the center of a cable. The quads in the center of the cable for the different arrangements are of the following types:

	Types of Quads	
No. of Quads in Center	**If adjacent to layer in which marker quad is Type 10**	**If adjacent to layer in which marker quad is Type 5**
1	2	7
2	1 & 2	6 & 7
3	1, 2 & 3	6, 7 & 8

4. ELECTIVE COMPLEMENTS OF EXCHANGE CONDUCTORS

4.01 In some cases it may be advantageous to include exchange type conductors in the same sheath with quadded conductors. The exchange complements are insulated and assembled as follows:

Gauge of Exchange Complement	Type of Insulation	Method of Assembly
19	Strip paper	Layer
22	Pulp or strip paper	Layer
24	Pulp or strip paper	Layer & Unit
26	Pulp	Unit

4.02 The arrangement and color groups of the exchange complements are essentially the same as those described in the section "Non-Quadded Composite Exchange Cable."

5. EXAMPLE

5.01 The following is a typical example of a Lead Covered Paper Insulated Quadded Cable with a core consisting of 45 quads 19 gauge, and an exchange complement of 203 pairs 19 gauge.

ARRANGEMENT OF CORE

Center 3 Qds. 19 Ga.	1st Layer 8 Qds. 19 Ga.	2nd Layer 14 Qds. 19 Ga.	3rd Layer 20 Qds. 19 Ga.	Outer Layers
6( )43	5( )35	10( )21	5( )1	Elective
7( )44	1( )36	6( )22	1( )2	Complement
8( )45	2( )37	7( )23	2( )3	203 Pairs
	3( )38	8( )24	3( )4	19 Ga.
	4( )39	9( )25	4( )5	
	1( )40	6( )26	1( )6	
	2( )41	7( )27	2( )7	
	3( )42	8( )28	3( )8	
		9( )29	4( )9	
		6( )30	1( )10	
		7( )31	2( )11	
		8( )32	3( )12	
		9( )33	4( )13	
		7( )34	1( )14	
			2( )15	
			3( )16	
			4( )17	
			1( )18	
			2( )19	
			3( )20	

Each Quad is represented by parentheses.

Numerals at right of parentheses indicate numbering provided for the splicer's use in segregating layers and boarding.

Numerals at left of parentheses indicate types of quads.